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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,413	07/27/2000	Theron D. Tock	9803-0099-999	1174

7590 10/27/2003
Pennie & Edmonds LLP
3000 Hillview Avenue
Palo Alto, CA 94304

EXAMINER

VU, TUAN A

ART UNIT	PAPER NUMBER
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2124

DATE MAILED: 10/27/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/627,413

Applicant(s)

TOCK ET AL.

Examiner

Tuan A Vu

Art Unit

2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-51(claims 1-21 being cancelled) is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-51(claims 1-21 being cancelled) is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/27/2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. This action is responsive to the application filed July 27, 2000.

Claims 22-51 have been submitted for examination; claims 1-21 have been cancelled.

Specification

Abstract

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

As per the current abstract, the paragraph length has surpassed the allowed limit for the amount for words. Appropriate action is required.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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4. Claims 22-51 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 6,128,771 (hereinafter '771). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons wherein, *inter alia*, only a few examples of conflicting claims instances are shown.

As per instant claim 22, '771 claims 1 and 5 also recite a method for generating object-oriented programs for accessing and updating persistent stored objects, comprising receiving and scanning the initial computer program to automatically identify object accessing instructions and corresponding program locations at which additional instructions are to be added representing a first set of identified program locations; automatically revising the initial program to generate a revised program by adding loading instructions wherein the added instructions during execution load respective ones of the objects from persistent storage into the main memory.

But the '771 claims do not specify that such respective object being accessed is not already in the main memory. One of ordinary skill in the art would be motivated to change modify the object to be accessed from being accessed a first time as recited by '771 to object not already in memory, because not already in memory means that the object would be loaded therein a first time.

The other recited limitations of '771 claims 1 and 5 are omitted in the instant claim 22 because of the obvious reasons that having those steps would consume more resources.

As per instant claim 24, '771 claim 2 also recites adding dirty object marking instructions so that these when executed will store object marking data indicating which objects in said main memory contain new and/or updated data; and objects storing instructions to store

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respective objects in main memory into persistent storage, those objects that contain new and/or updated data. Unlike instant claim 24, '771 claim 2 recites the object storing instructions come from a second set of instructions, but the adding of such storing instructions by the instant claim is implicitly disclosing that it comes as a second set of instructions.

As per instant claim 32, '771 claims 8 and 12 also recites a postprocessor, receiving and scanning an initial program and automatically generating a revised program by adding loading instructions performing the same steps as recited in '771 claims 1 and 5 above, including the rationale used to address the difference between '771 claims and the instant claim 22, as mentioned above.

As per instant claim 34, '771 claim 9 also recites adding dirty object marking instructions the same way as '771 claim 2 is obvious over instant claim 24.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 22-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hastings, USPN: 5,193,180 (hereinafter Hastings), in view of Gupta, USPN: 5,822,590 (hereinafter Gupta).

As per claim 22, Hastings discloses a method of generating object-oriented programs for accessing and updating memory stored objects, the method comprising:

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receiving an initial program that includes original instructions for accessing objects stored in computer main memory (e.g. old file – Fig. 1);

scanning the initial program to automatically identify object accessing instructions and corresponding locations at which instructions are to be added representing a first set of identified program locations (e.g. col. 3, lines 29-56; col. 8, line 61 to col. 10, line 21; Fig. 5-8 – Note: using relocation table, offset readjustment, to insert instructions for memory accesses is equivalent to identifying locations to insert accessing instructions);

automatically revising the initial computer program to generate a revised program by adding object loading instructions to the initial program at the first set of identified locations (e.g. col. 8, line 61 to col. 10, line 21; Fig. 5-8; col. 12, lines 61-67; col. 13, lines 27-50 – Note: loading instructions is inherent to memory accesses instructions; using insertion of code, patching into a precompiled code or linked code is equivalent to automatically generating revised code).

But Hastings does not explicitly disclose accessing and updating persistently stored objects nor does Hastings specify that the added loading instructions, when executed, load respective ones of the objects from persistent storage into the main memory when each respective object is accessed and not already in the main memory. Hastings discloses inserting code for maintaining memory stability (e.g. col. 9, lines 38 to col. 10, line 18) and allocation/de-allocation error preventing (e.g. col. 3, lines 29-56), thus suggesting maintaining consistency between data fetched into and read from memory. In a method to preprocess an initial program to establish memory access consistency using pointer table and offset information analogous to Hastings, Gupta discloses accessing and updating persistently stored objects and generating of

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instructions after preprocessing to dynamically load objects into memory (e.g. col. 2, line 46 to col. 2, line 45; Fig. 1-2). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the load instructions as taught by Gupta to the set of inserted instructions as suggested by Hastings to access and update persistently stored objects, and to load objects persistent objects into memory because memory accessed objects cannot limit to just program memory allocation and should be persisted in more non-volatile storage in order to alleviate burden on volatile memory, thus efficiently preserve resources that would be used for memory fault checking as intended by Hastings.

As per claim 23, Gupta discloses a pointer indicating that the object does not exist in memory (e.g. col. 4, lines 24-38); and the motivation to add the load instructions to respond only when the object to be accessed is referenced by a null indicator as taught by Gupta to Hastings's memory checking instructions has been set forth above for the same rationale.

As per claim 24, Hastings discloses object marking data, or status bits in conjunction with the added instructions to the initial program such as status array marking memory status of the memory and updating of such memory status bits (e.g. col. 9, line 38 to col. 11, line 36); but does not explicitly disclose adding dirty object marking instructions to the program; but the concept of using data structure in conjunction with added instructions to perform indication marking of program objects, i.e. indication a new and/or updated object, in order perform data or memory objects update, memory load or object persisting has been disclosed.

But Hastings does not specify adding object storing instructions to generate a revised instructions operable to store respective objects from memory into persistent storage wherein said respective objects are indicated by the object marking data. In view of the teachings by

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Gupta to use external structure information to resolve memory object consistency and to insert instructions to persist object from memory to non-volatile storage (e.g. col. 5, lines 10-36), it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide to Hastings' set of added instructions (based on the above marking technique) those that would dynamically store memory persistable objects as taught by Gupta into persistent storage, i.e. object storing instructions, because this would alleviate resources to update the persistent storage that would otherwise be required in another pass for checking in the revised program what persistable objects are to be written to persistent storage.

As per claim 25, Hastings only disclose inserting within instructions in the initial program with instructions based on offset information and relocation tables (re claim 22) but does not specify storing instructions with instructions for replacing certain respective memory objects reference with respective persistent objects identifiers. But Gupta specify generating instructions after a preprocessing to associate persistent object with global data structure for persisting objects via using those instructions (e.g. *OID*, *dbtable* - col. 3, line 36 to col. 4, line 3). In view of the rationale to combine Hastings and Gupta to provide storing instructions as mentioned above, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide the object ID and instructions to replace the memory persistable objects with respective persistently stored objects thus taught by Gupta in order to enhance the object referencing suggested in Hastings when Hastings uses relocation and offset pointing structure to efficiently track the effect of code insertion and memory consistency checking.

As per claim 26, Hastings discloses a method of generating object-oriented (e.g. col. 4, lines 48-54) programs for accessing and updating memory objects, the method comprising:

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receiving (for accessing, updating, committing transactions); scanning (for identifying locations at which to add instructions); revising (to generate revised program); all of these limitations have been addressed in claim 22 above, and are herein rejected using the rationale as set forth in claim 22. But Hastings does not specify accessing and updating persistent objects but this has been addressed in claim 22. Nor does Hastings disclose adding (dirty object marking instructions) and adding (storing instructions); but these limitations have been addressed in claim 24.

As per claim 27, this claim corresponds to claim 25, hence is rejected herein using the same rationale as set forth therein.

As per claim 28, Hastings discloses a method comprising: scanning an initial program to automatically identify object accessing and updating instructions and corresponding locations at which additional instructions are to be added (e.g. col. 8, line 61 to col. 10, line 21; col. 10, lines 23-61 - Fig. 3-8 -Note: identifying memory access instructions with memory allocation/de-allocation with write operations implicitly discloses instructions of both for accessing and updating memory, i.e. memory status update, e.g. col. 9, line 64 to col. 12, line 28). The limitation as to access and update persistently stored objects has been addressed using Gupta's teachings.

Further, Hastings discloses the steps:

automatically revising (for adding instructions at identified locations);

adding (set of instructions of object accessing, each object is accessed and not already in memory);

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adding (second set of instructions for object updating instruction, each object is updated for a first time). All of these steps have been addressed in claim 22 and further in Hastings: col. 9, line 64 to col. 12, line 28.

As per claim 29, this limitation of loading of objects from persistent storage to main memory has been addressed in the combination as set forth in claim 22 above, using Gupta's teachings.

As per claim 30, this claim includes the limitations to add object-marking instructions indicating new and/or updated data memory objects and has been addressed in claim 24; and is rejected using the rationale set forth therein.

As per claim 31, this claim corresponds to the limitation to commit memory objects to persistent storage; and adding a third set of instructions such as storing instructions as recited in claim 24; hence is rejected herein using the corresponding rejection as set forth in claim 24 (Note: to identify which memory objects that are persistable as taught by Gupta is equivalent to add instructions at corresponding locations to store those objects into persistent storage, or commit to persistent storage).

As per claim 32, Hastings discloses a program product for use in conjunction with a computer having main memory and persistent storage (e.g. Fig. 1 – Note: file system is equivalent to persistent storage; hard disk being an inherent persistent storage)such program comprising:

a postprocessor procedure for modifying an initial program that includes instructions for accessing and updating objects stored in a computer's main memory (e.g. col. 8, line 61 to col. 10, line 21; col. 10, lines 23-61 - Fig. 3-8 -Note: identifying memory access instructions with

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memory allocation/de-allocation with write operations implicitly discloses instructions of both for accessing and updating memory, i.e. memory status update, e.g. col. 9, line 64 to col. 12, line 28);

said postprocessor procedure including instructions to perform the steps of
receiving (initial computer program);
scanning (for object accessing instructions to be added);
automatically revising (to add load instructions). These steps limitations have been addressed in claim 22 above using the combined teachings of Hastings and Gupta.

As per claim 33, this claim corresponds to claim 23, hence is rejected likewise.

As per claims 34-35, see rejections of claims 24-25 respectively.

As per claim 36, Hastings discloses a program product comprising:
a postprocessor procedure (for modifying – see rejection in claim 32 above);
the postprocessor procedure having instructions for
receiving an initial program that includes instructions for accessing, updating objects stored in the main memory (re claim 32);
scanning the program to automatically identify object updating instructions and corresponding locations at which to add instructions (re claim 32);
automatically revising to generate a revised program (re claim 32).

But Hastings does not specify that the initial program includes committing transactions nor does Hastings disclose scanning to identify committing transactions; whereas Gupta discloses preprocessor identifying of objects that are persistable, hence discloses post-preprocessor program including committing transactions and identifying of locations at which to

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add transaction committing instructions (e.g. col. 5, lines 10-36 – Note: commit an object to persistent store is equivalent to storing object identified as persistable object to non-volatile storage). The motivation to combine Hastings' teachings as to add instructions to access and update memory objects with the persistent store instructions as taught by Gupta has been set forth in claim 24 above.

Nor does Hastings teach adding dirty object marking instructions and object storing instructions based on the object marking instructions; but this limitation has been addressed in claim 24 above.

As per claim 37, refer to claim 25 or 27.

As per claim 38, Hastings discloses a program product comprising a post-processor procedure as addressed in claim 32;

such post-processor procedure including instructions for performing the steps of
scanning (identifying accessing and updating instructions);
automatically revising (generate revised program by adding);
adding first set of instructions (for memory object accessing);
adding a second set of instructions (for memory updating instructions). All those steps
have been addressed in claim 28.

As per claims 39-41, refer to rejections of claims 29-31 respectively.

As per claim 42, Hastings discloses a computer system comprising a central processing unit; memory, including main memory and persistent storage (e.g. Fig. 1 – Note: file system is example of persistent storage), an initial computer program (e.g Fig. 1); and a postprocessor procedure for modifying the initial program so as to generate the revised program, the initial

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program including instructions for accessing objects stored in main memory (re claim 36 for corresponding rejection); the postprocessor procedure including instructions for performing the steps of receiving (initial program);

scanning (accessing and object access instructions);

automatically revising (generate revised program);

adding (object loading of instructions). All these steps limitations have been addressed in claim 22 above.

But Hastings does not specify that the added loading instructions when executed, load respective objects from persistent storage into main memory as recited in claim 22. However, this limitation has been addressed therein using Gupta's teachings.

As per claims 43-45, refer to claims 23-25, respectively.

As per claims 46, this claim includes the computer system as addressed in claim 42 and further includes a post-processor procedure having instructions for performing the same steps as recited in claim 36; hence is rejected with the corresponding rejection for each step as set forth in claim 36.

As per claim 47, this claim corresponds to claim 37, hence is rejected herein using the same rationale as set forth therein.

As per claim 48, this claim includes the computer system as addressed in claim 42 and further includes a post-processor procedure having instructions for performing the same steps as recited in claim 38; hence is rejected with the corresponding rejection for each step as set forth in claim 38.

As per claims 49-51, see rejections of claims 39-41 respectively.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat No. 5,247,669 to Abraham et al., disclosing materialize and dematerialize instructions and persistent storage.

U.S. Pat No. 5,359,730 to Marron, disclosing inserting safety points in program and commit phase to activate update.

U.S. Pat No. 5,864,864 to Lerner, disclosing compiler for persisting data with externalized data representation.

U.S. Pat No. 5,437,027 to Bannon et al., disclosing OO program with DDL and hash table for commit transactions.

U.S. Pat No. 5,295,256 to Bapat, disclosing parsing input file and generate class methods for SQL & persisting functions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (703)305-7207. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (703)305-9662.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for formal communications intended for entry)

or: (703) 746-8734 (for informal or draft communications, please label

“PROPOSED” or “DRAFT”)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA. , 22202. 4th Floor(Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

VAT
September 29, 2003

Kakali Chak
KAKALI CHAK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Notice of References Cited	Application/Control No. 09/627,413	Applicant(s)/Patent Under Reexamination TOCK ET AL.	
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U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-5,193,180	03-1993	Hastings, Reed	717/163
	B	US-5,822,590	10-1998	Gupta, Anil	717/136
	C	US-5,247,669	09-1993	Abraham et al.	707/103R
	D	US-5,437,027	07-1995	Bannon et al.	707/103R
	E	US-5,864,864	01-1999	Lerner, Benjamin	707/102
	F	US-5,359,730	10-1994	Marron, Assaf	717/169
	G	US-5,295,256	03-1994	Bapat, Subodh	717/137
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.